

A NEWLY RECOGNIZED SPECIES OF MEXICAN *VERBENA*
(VERBENACEAE)

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ABSTRACT

Verbena johnstonii (comb. et stat. nov.) occurs from west central Tamaulipas to central Coahuila, México. It has been treated as a variety of *V. perennis* but differs in its densely and evenly hirtellous stems and leaves, white throated corollas, and papillate commissural faces of the nutlets. It has often been identified as *V. neomezicana* var. *hirtella*, but the latter differs in both its leaf and nutlet morphology.

KEY WORDS: *Verbena*, Verbenaceae, México

Taxonomic distinctions have been unclear among a group of *Verbena* species that occur both in México and the southwestern United States: *V. neomezicana* (A. Gray) Small, *V. menthaefolia* Benth., *V. halei* Small, *V. canescens* Kunth, *V. gracilis* Desf., and *V. plicata* E. Greene. Still other taxa closely related to *V. neomezicana*, but restricted to México, have been described as species by H.N. Moldenke in the last 50 years. Of all these species, *V. halei* and *V. neomezicana* were included in phenetic analyses by Barber (1982), but her study did not address problems of significant, formally recognized infraspecific variation within the latter species (e.g., Moldenke 1970 in Correll & Johnston).

Verbena neomezicana also appears to be relatively closely related to *V. perennis* Woot. through a taxon described as *V. perennis* var. *johnstonii* Mold. One of the most obvious taxonomic adjustments that needs to be made within the verbenas of the United States and northern México involves var. *johnstonii*, and the following solution is proposed.

Verbena johnstonii (Mold.) Nesom, comb. et stat. nov. BASIONYM:
Verbena perennis Woot. var. *johnstonii* Mold., Phytologia 2:150. 1946.
TYPE: MEXICO. Tamaulipas, Mpio. Miquihuana, 12 km NW of Palmillas on the road to Miquihuana, in broad, damp river beds, 1950 m,

14 Aug 1941, *L.R. Stanford, K.L. Retherford, & R.D. Northcraft 915* (HOLOTYPE: NY; Isotype: MO!). *Verbena perennis* Woot. forma *johnstonii* (Mold.) Mold., *Phytologia* 44:329. 1979. *Verbena shrevei* I.M. Johnston ex Mold., *Phytologia* 2:150, in syn. 1946.

Perennials arising from strongly woody roots; stems, leaves, bracts, and calyces densely and evenly hispidulous-hirtellous with thin, stiffly spreading, sharp pointed, eglandular hairs 0.1-0.3 mm long, mixed with stipitate glandular hairs of nearly the same length. Stems erect, 3-5 dm tall, simple or few branched, commonly 5-10 arising from the root crown. Leaves mostly linear, not clasping, 3-5 cm long, 1-2 mm wide, the lower sometimes with 1-2 pairs of linear, widely divergent to recurved lobes 5-10 mm long, margins narrowly but strongly revolute, midvein deeply impressed above. Spikes terminal, slender, ca. 10-25 cm long in fruit, with internodes 7-15(-45) cm long; bracts narrowly ovate-lanceolate, 3-4(-5) mm long. Calyces 3.5-4.0(-5.0) mm long, elongating slightly in fruit, the teeth linear-lanceolate, ca. 0.5 mm long; corollas dark blue with a white throat, 5-6 mm long, the tube 4-5 mm long, the limb 6-7 mm wide. Nutlets 2.0-2.8 mm long, the commissural faces not reaching the nutlet apex, the plates narrowly elliptic with smooth margins, at least the upper plates distinctly papillate. The epithet commemorates I.M. Johnston (Moldenke 1964).

Additional collections examined: MEXICO. Coahuila: Ca. 6 km airline W of Saltillo, E extremity of the Sierra de la Vega, 3 Mar 1973, *Johnston et al. 10500C* (LL); Sierra la Gavia, 2 km SW of Restaurant La Muralla, 18 Mar 1973, *Johnston et al. 10284D* (LL); Mina El Aguirreno, N side of Sierra Paila, 5 Jul 1973, *Johnston et al. 11687* (MO); Mpio. Castanos, Puerto de San Lazaro, Sierra de San Lazaro, 30 Aug 1939, *Muller 3045* (LL); Sierra de Parras, Mar [year], *Purpus 1094* (MO); 9 km S of Parras on Sierras Negras, 3 Jul 1941, *Stanford et al. 198* and *234* (MO); Ojo Caliente, limestone slope S of town, 16 Aug 1979, *Wagner et al. 4132* (LL,MO). Nuevo León: Mpio. Galeana: 5.3 km E of El Potosí on road to Cerro Potosí, 22 Apr 1984, *Cowan 4636* (ANSM,MEXU,MO,TEX,UAT); 5 km S of Puerto México, KM 812, carretera México-Saltillo, 18 May 1965, *Hernández s.n.* (LL); above Santa Rita, 14 May 1981, *Hinton et al. 18241* (TEX); W slope Postosí, 29 Jun 1983, *Hinton et al. 18487* (TEX); above San Ubert, 20 Mar 1992, *Hinton et al. 21853* (TEX); 1 km NE of Rancho Las Ovejas in the Cañon de Potrerillos, 16 Mar 1973, *Johnston et al. 10235B* (LL); foothills below Pablillo, 15 mi SW of Galeana, 21 May 1934, *Muller 506* (TEX); Mpio. Derrumbadero, Cañon de los Capulines, above San Enrique, Hacienda San José de Raices, 6 Aug 1935, *Mueller 2375* (MO,TEX); 5.6 mi S of jct Hwy 61 and Linares-San Roberto road, 26 Oct 1981, *Poole 2494* (TEX); ca. 15 mi E of San Rafael off Hwy 57, 22 Jul 1977, *Wells & Nesom 91* (LL). Zacatecas: Puerto de Rocamontes at the Zacatecas-Coahuila state line, 29 Mar 1973, *Johnston et al. 10489* (LL); 10.5 mi from Concepción del Oro

toward Mazapil, 24 Aug 1977, *Lehto 21751* (LL); 15 km W of Concepción del Oro, 20 Jul 1941, *Stanford et al. 507* (MO).

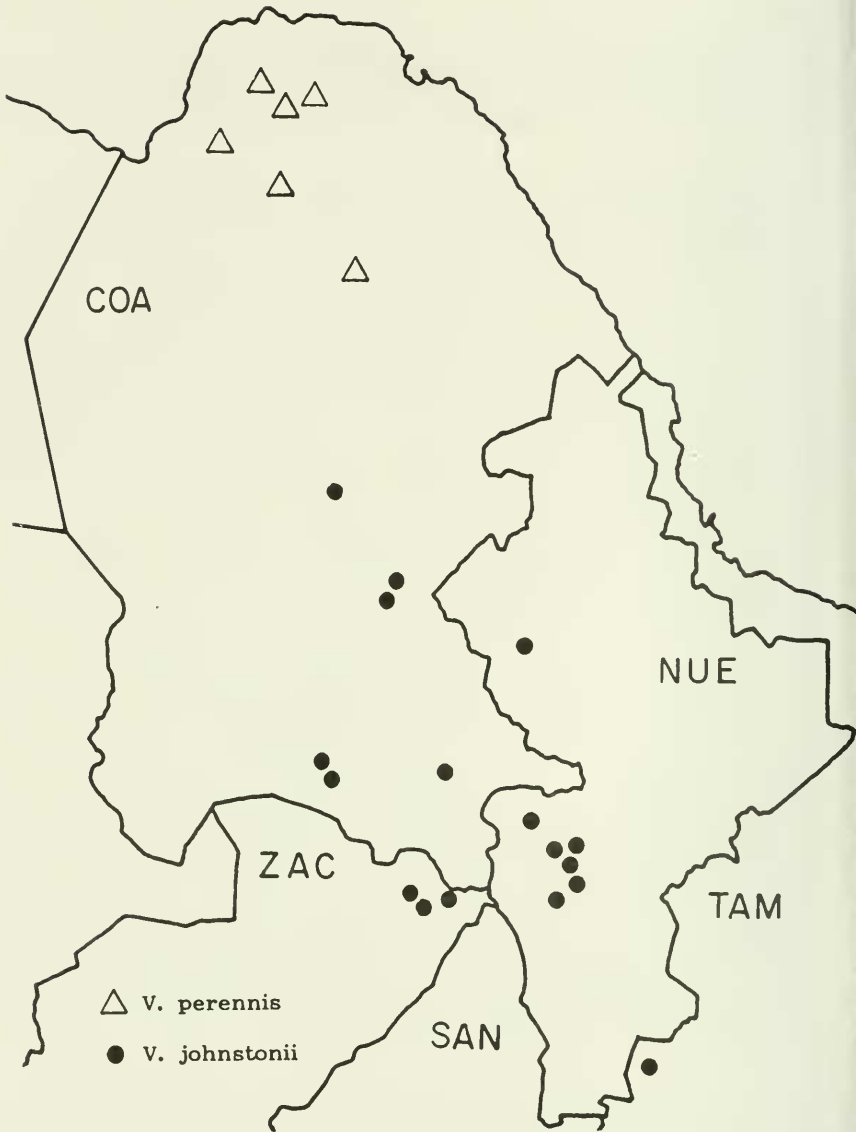
Tamaulipas, Nuevo León, Zacatecas, and Coahuila, México (Map 1); matorral to juniper and pine-oak woodlands, (750-)1800-2400 m; flowering March-October.

Verbena johnstonii is remarkably uniform in morphology, with little or no indication of intermediacy with co-occurring taxa that might be related (*V. neomexicana* and *V. canescens*). It is similar to the equally distinct *V. perennis* in its strongly perennial duration and tall habit and particularly in its linear leaves that are entire or with a few linear lobes and that have narrowly but strongly revolute margins. No other species produce similar leaves and the two may well be sister species. Moldenke gave no explanation for his original placement of *V. johnstonii* as a variety of *V. perennis* or for its subsequent reduction in taxonomic rank to forma, but presumably, the similarity he perceived was in leaf morphology. *Verbena johnstonii* differs from *V. perennis* in its white throated corollas and papillate commissural faces of the nutlets but most conspicuously in its distinctive vestiture; *V. perennis* has blue corollas, non-papillate commissural faces, and stems and leaves that are glabrous to sparsely or moderately strigose, rarely glandular. The two species appear to be completely allopatric (Map 1).

The only plants of *Verbena johnstonii* cited by Perry (1933) were identified by her as *V. neomexicana* var. *hirtella* Perry, but she noted that their linear leaves were peculiar (p. 299): "The leaves of *Purpus 1094* are so narrow and shallowly incised that it appears superficially like *V. perennis*; nevertheless, the character of the pubescence allies it with [var. *hirtella*]." *Verbena johnstonii* indeed is similar in vestiture to var. *hirtella*, but the two taxa are easily distinguished in other characters. Var. *hirtella* produces leaves that are oblanceolate to obovate or spatulate with coarsely serrate margins; its flowers are considerably smaller (the calyx 2.8-3.0 mm long, the corolla limb 4-5 mm wide); and the commissural plates of the nutlets are evenly bullate (not at all papillate) from top to bottom of the faces. Further, both *V. neomexicana* var. *neomexicana* and var. *hirtella*, which appear to be widely sympatric and perhaps genetically isolated from each other, intrude directly into the geographic range of *V. johnstonii* without intergrading with it.

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Map 1. Distribution of *Verbena johnstonii* and *V. perennis* in México. The range of *V. perennis* continues northwestward across trans-Pecos Texas into southeastern New Mexico and south central Arizona.

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